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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO. |
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| 10/623,712   | 07/21/2003  | Carlo Waldfried      | AXC 0003<br>IA/40970.19/01-S    | 4914             |
| 23368 7590 03/29/2007<br>DINSMORE & SHOHL LLP<br>ONE DAYTON CENTRE, ONE SOUTH MAIN STREET<br>SUITE 1300<br>DAYTON, OH 45402-2023 |             |                      | EXAMINER<br>PADGETT, MARIANNE L |                  |
|  |             |                      | ART UNIT                        | PAPER NUMBER     |
|  |             |                      | 1762                            |                  |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 03/29/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/623,712

Applicant(s)

WALDFRIED ET AL.

Examiner

Marianne L. Padgett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/7/2005, 11/3/2003 & 7/21/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 17-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 20-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/3/3, 3/7/5.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-16 & 20-27, drawn to a method of forming a porous coating of a silicon containing resin via a UV exposure/gelling with subsequent solvent evaporation, classified in class 427, subclass 515.
  - II. Claims 17-19, drawn to a porous silicon containing coating, on a generic substrate or generic electronic device, classified in class 428, subclass 318.4 or 446+.
2. The inventions are independent or distinct, each from the other because:

Inventions group I and group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product can be produced by different process steps, such as by plasma or thermal curing/gelling the deposit material, and analogous porous structures can be formed via different techniques, such as use of sacrificial/decomposable ligands on the resin or decomposable constituents in the deposit material.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions

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require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Patricia Prior on 1/7/2007 a provisional election was made with traverse to prosecute the invention of group 1, process claims 1-16 & 20-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. Claims 1-16 & 20-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claim 1, the phrase "at least partial condensation" is ambiguous or unclear, as it does not clearly state what is being condensed (fully or partially), such that it could be referring to the groups that are caused to go undergo hydrolysis in the preceding line, or it could be referring to the coating as a whole, in which case the "condensation" could mean a type of polymerization reaction associated with hydrolysis and resins, or it could mean condensed in the sense of being made more dense, hence both the meaning and what is being necessarily condensed is ambiguous as written. Furthermore, the limitation of "at least partial condensation" is potentially contradictory with the succeeding requirement in the next line, which requires "evaporating...to form a porous network coating", since a coating which is completely condensed (i.e. fully dense), cannot be porous, although it is alternatively possible for the limitations to represent a sequential change, where one step is more dense than porous, or

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vice versa. Given the potentially contradictory meaning, the examiner considers it unlikely that applicants intended the densification meaning of condensation, however the claims should be clear as to exactly what process limitations are being claimed.

In claim 2, the subscripts a, b, c & d in the claimed formula are undefined, hence the formula is vague and indefinite, and its scope can NOT be clearly determined. In claim 3, while the various variables (a, x, y, z & n) in the different species formulas are provided with ranges, both the second and {third or last} formula employed the subscript variable "x", which is defined as  $x = 0-2$ , where  $x+y+z=3$ , with "the average value of y over all units of the polymer is greater than 0", where "the polymer" has antecedents to either "a polymer" describing the second or third options in the Markush group, but it is unclear how to apply all these requirements to the second formula, which has neither the variables "y" or "z", but as claimed "y" is required to be greater than zero.

Also in claim 3, the examiner is unclear how the formula required in claim 2, from which claim 3 depends, can read on polymers having units with hydroxyl groups, -OH, as required in two of the claim 3 options, since all the units shown in the formula of claim 2 have their R groups attached to the Si and none of the possible selections for R include hydroxyl groups.

In claim 4, is the "between about 0.1 and about 95 weight percent" referring to the weight in the solution of the solvent or of the resin molecule, and if the latter does the total weight percent include the weight of the solvent in the total 100%?

In claim 10, the limitation of "exposed to UV radiation for up to about 600 seconds" (emphasis added) is inclusive of zero exposure to UV. With respect to the independent claim it is noted that this is not inconsistent, because the requirement of "exposing the coating to UV radiation... sufficient to cause hydrolysis of..." encompasses zero seconds of exposure if no UV radiation is required in order to cause hydrolysis. It is noted that this phrasing may merely be considered **broad**, hence is not necessarily vague and indefinite, however alternatively since the phrasing **implies** that UV is **intended** to be used for a

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positive amount of time, the potential inclusion of no exposure to UV at all, can be considered ambiguous.

Claims 14 & 25, first claimed UV power, but then recite "between about 0.1 and about 1000 mW/cm<sup>2</sup>", which is power per unit area or affluence, presumably at the coated surface, hence the language of these claims is inconsistent.

Independent claim 20, which is substantially the same as independent claim 1, except for the negative limitation of "without use of ammonia", and positively requiring that gelling or "gelating" take place with the hydrolysis & condensation effects, has the same problems as described for claim 1 above. Also see claim 21, which is equivalent claim 10.

It is further noted that the preamble of claim 20, which states "an ammonia-free process for forming a coating on a substrate" is not commensurate scope with the body of the claim, as the preamble requires the entire process to be free of ammonia, at any step in the process, while the body of the claim only requires that ammonia is not used for a very specific effect, i.e. to cause "gelating".

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-11 & 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chung et al. (EP 1003210 A2).

This rejection is being made with respect to the option for the claims as presently written that an exposure of zero seconds of UV radiation is sufficient exposure for causing hydrolysis to occur, and that the rejection would be removed by a positive claim of UV exposure and exclusion of language including zero seconds of exposure.

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Chung et al. teach depositing a resin containing at least two Si-H groups in a solvent in a manner in which at least 5 volume % of the solvent remains in the coating after deposition and during exposure to a basic catalyst and water that causes condensation of the Si-H groups and evaporation of the solvent, so as to form a porous network coating as claimed (abstract). The solvents may be present in amounts of 20-99.9 wt. % or 70-95 wt. % based on the weight of the resin plus the solvent, where a preferred embodiment teaches use of a solvent (hydrocarbons, aromatic hydrocarbons, esters, ethers, etc.) with a high boiling point above 175°C alone, or as a co-solvent, where hydrocarbon solvents are particularly preferred ([0025] & [0028]). In order to cause hydrolysis & condensation reactions, the coating is contacted with a basic catalyst and water, where the basic catalyst may be various amines with the more preferred exposure times been one second up to 15 minutes, under conditions inclusive of atmospheric pressure and room temperature ([0030-33], [0039-40] & [0044-45]). Note that while the option of using ammonia as a catalyst is taught, it is not required, so that the negative limitation of claim 20 is covered. Particular formulas for contemplated resin material is consistent with the specific formulas of the dependent claims can be found in paragraphs [0016-18].

With respect to the claim limitations of "exposing..."/"gelating..." and the "evaporating the solvent...", it is noted that there is no necessary order in the steps, such that evaporating may take place before the exposing or gelating hydrolysis step, because order of listing does not necessitate order of doing, unless there are temporal or antecedent limitations present in the claims.

9. Claims 1-16 & 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. (EP 210), discussed for claims 1-11 & 20-22 above, and alternately in view of Arkles et al. (5,853,808) and/or Harkness et al. (6,051,625).

Considering the option and probable intent of using UV to cure the claimed silicon-containing resin, Chung et al. (EP) does not do their hydrolysis curing by UV, however Arkles et al. (col. 3, lines 10-35; col. 8, lines 40-9 & 55; an example 9, col. 14), who makes coatings with silsesquioxanes polymers in



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solution of solvents, as taught by Chung et al. & claimed, to form SiO<sub>2</sub>-rich ceramic films, teaches both a thermal technique analogous to that of Chung et al., and an equivalent alternative of performing the crosslinking with UV radiation, such as  $\lambda=195$  nm, optionally combined with thermal processes, which use temperatures from 150-700°C, where the processing atmosphere contains moisture and nonreactive gases, such as N<sub>2</sub>, Ar or He, or reactive gases, such as air, O<sub>2</sub>, or HCl. As pressure modification is not mentioned, use of approximately atmospheric pressure is assumed. Arkles et al. further teach that use of UV has the advantages of typically resulting in higher SiO<sub>2</sub>-content than thermal processing, and may also be advantageously used to make patterned films by selective focus of the UV light. It would have been obvious to one of ordinary skill in the art given the teachings of Arkles et al. on the equivalence of using thermal & UV cure in techniques for their silsesquioxane solution coatings, to use it as an equally effective curing technique in Chung et al. to create porous silicon dioxide-containing coatings as taught therein, especially as the advantages (patterning & SiO<sub>2</sub>-content) taught in Arkles et al. would also have been expected to apply to the porous dielectrics of Chung et al. (EP).

Arkles et al. doesn't discuss what power is employed in their UV light sources or their fluences employed, but it would've been obvious to one of ordinary skill in the art to determine suitable power usage dependent on specific light sources, configuration & distance of light source from coating, required fluences for cure of specific materials or area are required to be cured/covered for the specific enduse (blanket or patterned, large or small area, etc.), where the area to be treated combined with the power would determine the power/unit area or fluence desired. Applicant's wide range of values,  $\sim 0.1 \sim 1000$  mW/cm<sup>2</sup>, would have been expected to include most values determined by routine experimentation.

Alternately, Harkness et al. (625) teach forming deposited coatings of polysiloxanes compositions using compounds as taught in Chung et al., and as claimed (abstract; col. 2, lines 7-34 & 40-58; col. 3, lines 30-col. 5, lines 46), that are UV cured with optional inclusion of based

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generators to effect a free radical mechanism whose by-product is water (i.e. hydrolysis). UV treating may take place at from 20°C-180°C, and does not suffer from air or oxygen inhibition, thus may use of air, N<sub>2</sub>, Ar, etc., atmospheres, and may be followed by additional heating (50-400°C) to accelerate the cure (abstract; col. 2, lines 1-6, 34-38 & 59-65; col. 5, lines 47-64). Given the solution deposited resins UV cured by Harkness et al. (625), it would have been obvious to one of ordinary skill in the art that the cure in Chung et al. would have been effectively equivalently cured by UV as an alternative to thermal curing employed in the primary reference, where the ability to effect patterning with the cure would have provided additional motivation, beyond the showing of equivalence.

It is noted that the primary reference's use of a high boiling point solvent that is not to be removed before curing would not have been expected to interfere with the UV curing in Harkness et al., as the lack of air or oxygen inhibition implies that moisture or the like present from the solvents would not have been expected to inhibit the curing, thus substitution of UV for thermal curing would have been expected to be equally effective in creating the porous dielectrics of the primary reference. Similar or analogous logic also applies to Arkles et al., who calls for the presence of moisture and possibly air or oxygen, assault so clearly does not have inhibition problems.

It is further noted, that the compositions of Arkles et al., while similar to those claimed different by employing different ligand combinations, such that R<sub>2</sub>SiX<sub>2</sub>, where R = substituted alkyl groups (halogens or alkoxides substitutions (=X)), thus only some of their compounds have exemplary use of one Si-CH<sub>3</sub> or Si-H. It is also noted that while Harkness et al. (65) has the claimed Si-resin compounds, they do not employ the claimed solvents or themselves show

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equivalence of UV with thermal cure, however between the two secondary references, the UV curable of quality of both variations of silsesquioxanes are demonstrated, thus further showing the expected the equivalence of curing a variety of silsesquioxanes including those claimed in the primary reference.

10. Claims 1, 4, 10-11, 20-22 are rejected under 35 U.S.C. 102(e or b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wolter et al. (6,818,133 B1 or EP 0985443 A2).

Claims 5-9, 12-16 & 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolter et al.

Note that the EP & US references have the same German priority documents, hence the US reference is taken as an equivalent or translation for the EP reference.

Wolter et al. teach making membranes, that may be formed on a support (claims 2, 4-5 & 17-18) and may be porous, where the resins that are originally modified silica-acid polycondensates (cols. 3-6 & 7-10; resin types on cols. 16-18 & 21-22, plus claims 1, 8 & 11), where taught resins may include at least two-Si-CH<sub>3</sub> groups, including O-Si(CH<sub>3</sub>)<sub>2</sub>-, and when porous membranes are desired, a volatile addition, such as solvent (ethyl acetate (b.p.=77°C), ethanol (b.p.=78.3°C) or isopropanol (b.p.=82.4°C), etc.), are added to the solution, and removed after curing (col. 13, lines 66-col. 14, lines 19), via heating (exemplary use of ~ 100°C for given solvents) &/or evacuation techniques that would effectively cause evaporation. Wolter et al. teach to cure by any of thermal, radiation or chemical means (col. 6, lines 25-32; col. 15, lines 1-8; & claims 1, 24 & 28), where the only specifically mentioned form of radiation curing is UV (col. 26, lines 25-34), hence radiation as recited in light of this disclosure is clearly inclusive of UV curing, or alternately, it would have been obvious to one of ordinary skill in the art to employ UV curing for the generally taught radiation induced curing, as it is both a conventional type thereof, and suggested by the disclosure, when a specific curing process is exemplified. It is noted that given the

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nature of the taught resin materials, that when thermal or UV curing is employed, it would appear to affect a hydrolysis or condensation type reaction.

No general teaching of parameters for radiation curing are taught by Wolter et al., hence one of ordinary skill would have been expected to determine appropriate parameters via routine experimentation, depending on particular resin composition & desired membrane configuration and properties, noting that for solvents used as a porogen all those taught by Wolter et al. are hydrocarbon based, and any conventional means to prevent evaporation of the solvent before curing is complete would have been expected to be employed given the teachings that the solvent needs to remain, which would have been inclusive of using a solvent whose boiling point is above the process's curing temperature, thus where higher temperatures are used during UV cure, higher boiling point solvent(s) would have been expected & obvious to employ in order to insure that their presence was maintained for producing a porous membrane. Also, techniques of performing the curing in an environment that would discourage evaporation would have been expected to be conventional/standard techniques and inclusive of means of ensuring higher vapor pressures which tends to reduce evaporation or sublimation, such as an enclosed chamber, or the like.

11. Claims 1-16 & 20-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14, 21 & 34-58 of U.S. Patent No. 6,756,085 B2 (Waldfried et al.), optionally in view of Chung et al. (EP 210). Although the conflicting claims are not identical, they are not patentably distinct from each other because by variations in scope that overlap, specifically the present claims require a porous coating to be formed using solvent as a porogen, while in the patent (085) only an option in dependent claim 5 requires use of solvent to form pores. The present claims need not form a dielectric (although that's probably the intent), but require at their broadest to employ a resin with a minimum of two Si-H or two Si-CH<sub>3</sub> groups, while (085) always requires a dielectric, but it need not be a silicon-containing dielectric at its broadest, but dependent claims 3 or 57

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claim alternatives of using H- or methyl-silsesquioxanes (HSQ or MSQ), which are options included by applicants' claims 2-3, thus scopes overlap (see previously discussed teachings in Harkness et al. (625) or Chung et al. (EP) that show the presently claimed formulas are inclusive of HSQ or MSQ compounds).

Other mighty variations, such as specific solvents or parameters associated therewith are obvious variations on the (085) patent's limitation that forms porous coatings using solvent. Alternately, Chung et al. (EP), discussed above, teaches how solvent is used as a porogen to create porous dielectrics with various silsesquioxanes, hence it would have been obvious to one of ordinary skill in the art, that given the suggestion of solvent formed pores in the (085) claims, to look to prior art teachings, such as in Chung et al. (EP), who perform pore formation by such techniques to provide particular means of effecting that technique.

12. Other art of interest includes the copending cases to Berry, III et al. (6576300 B1), who claims thermally curing silicon-containing dielectric materials with claimed compounds, but unlike Chung et al. (EP) this material when cured is already porous; and SN 11/446,052, directed to UV reactions of possibly HSQ or alkyl-SQ or porous silicates, etc., but as presently claimed, what state the material is in or what effect the UV has is so nebulous that whether there is any obviousness double patenting is presently unclear.

Other art relevant to the state-of-the-art includes: Revis et al. (4,782,040), who coats an already porous substrate with material of interest and cures with UV; Shi et al. (6284050 B1 & Hacker (2002/0136910 A1) cited by applicants, are noted to have UV cure of compounds of interest, but varying techniques; plus pre-grant publications to Adams et al. (2004/0109950 A1), Xu et al. (2006/0081557 A1), Nakayama et al. (2006/0281828 A1), Tsuchiya et al. (2006/0006541 A1 & 2006/0024980 A1) & Lyu et al. (2005/009057 0 A1), who are all of interest for UV curing materials of interest, but are not prior art.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

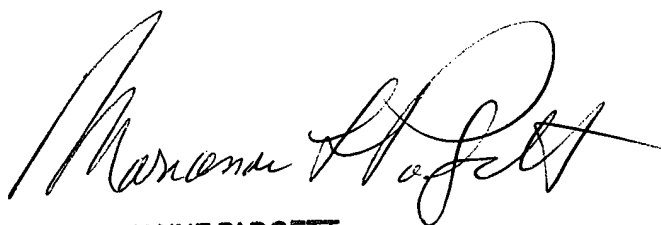
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

1/7/2007

3/17 & 19/2007

A handwritten signature in black ink, appearing to read 'Marianne Padgett', is written in a cursive style.

MARIANNE PADGETT  
PRIMARY EXAMINER